

Short Form Contract

Provision of Goods / Services (Natural England)

34262 - Developing a framework approach for responding to wetland mitigations

November 2021

THIS CONTRACT is dated 22/11/2021

BETWEEN

NATURAL ENGLAND of Foss House, Kings Pool, 1-2 Peasholme Green, York. YO1 7PX (the "Authority"); and

River Ecosystem Services, Rain-Charm House, Kyl Cober Parc, Stoke Climsland, Callington, Cornwall. PL17 8PH. United Kingdom (the "Supplier")

(each a "Party" and together the "Parties").

BACKGROUND

- a) The Authority requires the services set out in Schedule 1 (the "Services").
- b) The Authority has awarded this contract for the Services to the Supplier and the Supplier agrees to provide the Services in accordance with the terms of the contract.

AGREED TERMS

1. Definitions and Interpretation

1.1 In the Contract, unless the context requires otherwise, the following terms shall have the meanings given to them below:

'Approval': the prior written consent of the Authority.

'Authority Website': www.naturalengland.org.uk

'Contract Term': the period from the Commencement Date to the Expiry Date.

'Contracting Authority': an organisation defined as a contracting authority in Regulation 2 of the Public Contracts Regulations 2015.

'Controller': has the meaning given in the GDPR.

'Data Loss Event': any event that results, or may result, in unauthorised access to Personal Data held by the Supplier under this Contract, and/or actual or potential loss and/or destruction of Personal Data in breach of this Contract, including any Personal Data Breach.

'Data Protection Impact Assessment': an assessment by the Controller of the impact of the envisaged processing on the protection of Personal Data.

'Data Protection Legislation': (i) the GDPR, the LED and any applicable national implementing Laws as amended from time to time (ii) the DPA 2018 to the extent that it relates to processing of personal data and privacy; and (iii) all applicable Law about the processing of personal data and privacy.

'Data Protection Officer': has the meaning given in the GDPR.

'Data Subject': has the meaning given in the GDPR.

‘Data Subject Request’: a request made by, or on behalf of, a Data Subject in accordance with rights granted pursuant to the Data Protection Legislation to access their Personal Data.

‘Default’: a breach by the Supplier or Staff of its obligations under the Contract or any other default, negligence or negligent statement in connection with the Contract.

‘Dispute Resolution Procedure’: the dispute resolution procedure set out in Clause 20.

‘DPA 2018’: the Data Protection Act 2018.

‘Force Majeure’: any cause affecting the performance by a Party of its obligations under the Contract arising from acts, events, omissions or non-events beyond its reasonable control, including acts of God, riots, war, acts of terrorism, fire, flood, storm or earthquake and any disaster, but excluding any industrial dispute relating to the Supplier, its Staff or any other failure in the Supplier’s supply chain.

‘Fraud’: any offence under laws creating offences in respect of fraudulent acts or at common law in respect of fraudulent acts in relation to the Contract or defrauding or attempting to defraud or conspiring to defraud the Authority or any other Contracting Authority.

‘GDPR’: the General Data Protection Regulation (Regulation (EU) 2016/679).

‘Good Industry Practice’: standards, practices, methods and procedures conforming to the law and the degree of skill and care, diligence, prudence and foresight which would reasonably and ordinarily be expected from a skilled and experienced person or body engaged in a similar type of undertaking under similar circumstances.

‘Goods’: all products, documents, and materials developed by the Supplier or its agents, Sub-contractors, consultants, suppliers and Staff in relation to the Services in any form, including computer programs, data, reports and specifications (including drafts).

‘Intellectual Property Rights’: any and all intellectual property rights of any nature anywhere in the world whether registered, registerable or otherwise, including patents, utility models, trademarks, registered designs and domain names, applications for any of the foregoing, trade or business names, goodwill, copyright and rights in the nature of copyright, design rights, rights in databases, moral rights, know-how and any other intellectual property rights which subsist in computer software, computer programs, websites, documents, information, techniques, business methods, drawings, logos, instruction manuals, lists and procedures and particulars of customers, marketing methods and procedures and advertising literature, including the “look and feel” of any websites.

‘IP Materials’: all Intellectual Property Rights which are:

- a) furnished to or made available to the Supplier by or on behalf of the Authority; or
- b) created by the Supplier or Staff in the course of providing the Services or exclusively for the purpose of providing the Services.

‘Law’: any law, statute, subordinate legislation within the meaning of section 21(1) of the Interpretation Act 1978, bye-law, enforceable right within the meaning of section 2 of the European Communities Act 1972, regulation, order, regulatory policy, mandatory guidance or code of practice, judgment of a relevant court of law, or directives or requirements of any regulatory body with which the relevant Party is bound to comply.

‘LED’: Law Enforcement Directive (Directive (EU) 2016/680).

‘Personal Data’: has the meaning given in the GDPR.

‘Personal Data Breach’: has the meaning given in the GDPR.

‘Price’: the price for the Services set out in Schedule 2.

‘Processor’: has the meaning given in the GDPR.

‘Protective Measures’: appropriate technical and organisational measures which may include: pseudonymising and encrypting Personal Data, ensuring confidentiality, integrity, availability and resilience of systems and services, ensuring that availability of and access to Personal Data can be restored in a timely manner after an incident, and regularly assessing and evaluating the effectiveness of the such measures adopted by it.

‘Replacement Supplier’: any third party supplier of services appointed by the Authority to replace the Supplier.

‘Staff’: all employees, staff, other workers, agents and consultants of the Supplier and of any Sub-contractors who are engaged in providing the Services from time to time.

‘Sub-contract’: any contract between the Supplier and a third party pursuant to which the Supplier agrees to source the provision of any of the Services from that third party.

‘Sub-contractor’: third parties which enter into a Sub-contract with the Supplier.

‘Sub-processor’: any third party appointed to process Personal Data on behalf of the Supplier related to this Contract.

‘Valid Invoice’: an invoice containing the information set out in Clause 3.3.

‘VAT’: Value Added Tax.

‘Working Day’: Monday to Friday excluding any public holidays in England and Wales.

1.2 The interpretation and construction of the Contract is subject to the following provisions:

- a) words importing the singular meaning include where the context so admits the plural meaning and vice versa;
- b) words importing the masculine include the feminine and the neuter;
- c) reference to any statutory provision, enactment, order, regulation or other similar instrument are construed as a reference to the statutory provision enactment, order regulation or instrument (including any instrument of the European Union) as amended, replaced, consolidated or re-enacted from time to time, and include any orders, regulations, codes of practice, instruments or other subordinate legislation made under it;
- d) reference to any person includes natural persons and partnerships, firms and other incorporated bodies and all other legal persons of whatever kind and however constituted and their successors and permitted assigns or transferees;

- e) the headings are inserted for ease of reference only and do not affect the interpretation or construction of the Contract;
- f) references to the Services include references to the Goods;
- g) references to Clauses and Schedules are to clauses and schedules of the Contract; and
- h) the Schedules form part of the Contract and have effect as if set out in full in the body of the Contract and any reference to the Contract includes the Schedules.

2. Contract and Contract Term

- 2.1 The Supplier shall provide the Authority with the services set out in Schedule 1 (the “Services”) in accordance with the terms and conditions of the Contract.
- 2.2 The Contract is effective on 22nd November 2021 (the “Commencement Date”) and ends on 25th March 2022 (the “Expiry Date”) unless terminated early or extended in accordance with the Contract.

3. Price and Payment

- 3.1 In consideration of the Supplier providing the Services in accordance with the Contract, the Authority shall pay the Price to the Supplier.
- 3.2 The Authority shall:
 - a) provide the Supplier with a purchase order number (“PO Number”); and
 - b) pay all undisputed sums due to the Supplier within 30 days of receipt of a Valid Invoice.
- 3.3 A Valid Invoice shall:
 - a) contain the correct PO Number;
 - b) express the sum invoiced in sterling; and
 - c) include VAT at the prevailing rate as a separate sum or a statement that the Supplier is not registered for VAT.
- 3.4 The Supplier shall submit invoices, having met the key deliverables to the satisfaction of the client, as per the Chronological Summary of Deliverables and the Payment Schedule within the ITT, to the Authority at the following addresses: Accounts-Payable.neg@sscl.gse.gov.uk or SSCL AP, Natural England, PO Box 790, Newport Gwent, NP10 8FZ
- 3.5 The Supplier acknowledges that:
 - a) if the Supplier does not include VAT on an invoice or does not include VAT at the correct rate, the Authority will not be liable to pay the Supplier any additional VAT;
 - b) invoices which do not include the information set out in Clause 3.3 will be rejected.

3.6 Any late payment of an undisputed amount is not made by the Authority by the due date, then the Authority shall pay the Supplier interest at the interest rate specified in the Late Payment of Commercial Debts (Interest) Act 1998.

3.7 The Supplier shall not suspend provision of the Services if any payment is overdue.

3.8 The Supplier indemnifies the Authority on a continuing basis against any liability, including any interest, penalties or costs incurred, which is levied, demanded or assessed on the Authority at any time in respect of the Supplier's failure to account for or to pay any VAT relating to payments made to the Supplier under the Contract.

4. Extension of the Contract

4.1 The Authority may, by written notice to the Supplier, extend the Contract for a further period up to 3 months.

5. Warranties and Representations

5.1 The Supplier warrants and represents for the Contract Term that:

- a) it has full capacity and authority and all necessary consents and regulatory approvals to enter into the Contract and to provide the Services;
- b) the Contract is executed by a duly authorised representative of the Supplier;
- c) in entering the Contract it has not committed any Fraud;
- d) as at the Commencement Date, all information contained in its tender or other offer made by the Supplier to the Authority remains true, accurate and not misleading, save as may have been specifically disclosed in writing to the Authority prior to execution of the Contract and that it will advise the Authority of any fact, matter or circumstance of which it may become aware which would render such information false or misleading;
- e) no claim is being asserted and no litigation, arbitration or administrative proceeding is presently in progress or, to the best of its knowledge and belief, pending or threatened against it or any of its assets which will or might have a material adverse effect on its ability to perform its obligations under the Contract;
- f) it is not subject to any contractual obligation, compliance with which is likely to have a material adverse effect on its ability to provide the Services;
- g) no proceedings or other steps have been taken and not discharged (or, to the best of its knowledge, are threatened) for the winding up of the Supplier or for its dissolution or for the appointment of a receiver, administrative receiver, liquidator, manager, administrator or similar in relation to any of the Supplier's assets or revenue;
- h) it owns, or has obtained or is able to obtain valid licences for, all Intellectual Property Rights that are necessary to provide the Services; and
- i) Staff shall be engaged on terms which do not entitle them to any Intellectual Property Right in any IP Materials;
- j) it will comply with its obligations under the Immigration, Asylum and Nationality Act 2006.

- 5.2 The Supplier warrants and represents that in the 3 years prior to the date of the Contract:
- a) it has conducted all financial accounting and reporting activities in compliance with generally accepted accounting principles and has complied with relevant securities;
 - b) it has not done or omitted to do anything which could have a material adverse effect on its assets, financial condition or position as a going concern or its ability to provide the Services; and
 - c) it has complied with all relevant tax laws and regulations and no tax return submitted to a relevant tax authority has been found to be incorrect under any anti-abuse rules.

6. Service Standards

- 6.1 The Supplier shall provide the Services or procure that they are provided with reasonable skill and care, in accordance with Good Industry Practice prevailing from time to time and with Staff who are appropriately trained and qualified.
- 6.2 If the Services do not meet the Specification, the Supplier shall at its own expense re-schedule and carry out the Services in accordance with the Specification within such reasonable time as may be specified by the Authority.
- 6.3 The Authority may by written notice to the Supplier reject any of the Goods which fail to conform to the approved sample or fail to meet the Specification. Such notice shall be given within a reasonable time after delivery to the Authority of the Goods. If the Authority rejects any of the Goods it may (without prejudice to its other rights and remedies) either:
- a) have the Goods promptly either repaired by the Supplier or replaced by the Supplier with Goods which conform in all respects with the approved sample or with the Specification and due delivery shall not be deemed to have taken place until the repair or replacement has occurred;
- or
- b) treat the Contract as discharged by the Supplier's breach and obtain a refund (if the Goods have already been paid for) from the Supplier in respect of the Goods concerned together with payment of any additional expenditure reasonably incurred by the Authority in obtaining replacements.
- 6.4 The Authority will be deemed to have accepted the Goods if it expressly states the same in writing or fails to reject the Goods in accordance with Clause 6.3.
- 6.5 If the Authority issues a receipt note for delivery of the Goods it shall not constitute any acknowledgement of the condition, quantity or nature of those Goods or the Authority's acceptance of them.
- 6.6 The Supplier hereby guarantees the Goods against faulty materials or workmanship for such period as may be specified in the Specification or, if no period is so specified, for 3 years from the date of acceptance. If the Authority shall within such guarantee period or within 30 Working Days thereafter give notice in writing to the Supplier of any defect in any of the Goods as may have arisen during such guarantee period under proper and normal use, the Supplier shall (without prejudice to any other rights and remedies which the Authority may have) promptly remedy such defects (whether by repair or replacement as the Authority shall choose) free of charge.

- 6.7 Any Goods rejected or returned by the Authority pursuant to this Clause 6 shall be returned to the Supplier at the Supplier's risk and expense.

7. Termination

- 7.1 The Authority may terminate the Contract at any time by giving 30 days written notice to the Supplier.
- 7.2 The Authority may terminate the Contract in whole or in part by notice to the Supplier with immediate effect and without compensation to the Supplier if:
- a) being an individual, the Supplier is the subject of a bankruptcy order; has made a composition or arrangement with his creditors; dies or is adjudged incapable of managing his affairs within the meaning of Part VII of the Mental Health Act 1983;
 - b) being a company, the Supplier goes into compulsory winding up, or passes a resolution for voluntary winding up, or suffers an administrator, administrative receiver or receiver and manager to be appointed or to take possession over the whole or any part of its assets, is dissolved; or has entered into a voluntary arrangement with its creditors under the Insolvency Act 1986, or has proposed or entered into any scheme of arrangement or composition with its creditors under section 425 of the Companies Act 1985; or has been dissolved;
 - c) being a partnership, limited liability partnership or unregistered company, the Supplier or an individual member of it goes into compulsory winding up; is dissolved; suffers an administrator or receiver or manager to be appointed over the whole or any part of its assets; or has entered into a composition or voluntary arrangement with its creditors;
 - d) the Supplier is in any case affected by any similar occurrence to any of the above in any jurisdiction;
 - e) subject to Clause 7.3, the Supplier commits a Default;
 - f) there is a change of control of the Supplier; or
 - g) the Supplier or Staff commits Fraud in relation to the Contract or any other contract with the Crown (including the Authority).
- 7.3 If the Supplier commits a Default which is capable of being remedied, the Authority may terminate the Contract pursuant to Clause 7.2(e) only if the Supplier has failed to remedy the Default within 20 Working Days of being notified of the Default by the Authority.

8. Consequences of Expiry or Termination

- 8.1 If the Authority terminates the Contract under Clause 7.2:
- a) and then makes other arrangements for the supply of the Services, the Authority may recover from the Supplier the cost reasonably incurred of making those other arrangements and any additional expenditure incurred by the Authority throughout the remainder of the Contract Term; and

- b) no further payments shall be payable by the Authority to the Supplier (for the Services supplied by the Supplier prior to termination and in accordance with the Contract but where the payment has yet to be made by the Authority), until the Authority has established the final cost of making the other arrangements envisaged under Clause 8.1(a).
- 8.2 On expiry or termination of the Contract the Supplier shall:
- a) co-operate fully with the Authority to ensure an orderly migration of the Services to the Authority or, at the Authority's request, a Replacement Supplier; and
 - b) procure that all data and other material belonging to the Authority (and all media of any nature containing information and data belonging to the Authority or relating to the Services) shall be delivered promptly to the Authority.
- 8.3 Save as otherwise expressly provided in the Contract:
- a) termination or expiry of the Contract shall be without prejudice to any rights, remedies or obligations accrued under the Contract prior to termination or expiration and nothing in the Contract shall prejudice the right of either Party to recover any amount outstanding at such termination or expiry; and
 - b) termination of the Contract shall not affect the continuing rights, remedies or obligations of the Authority or the Supplier under Clauses 3, 8 to 13, 17, 26 and 28.

9. Liability, Indemnity and Insurance

- 9.1 Notwithstanding any other provision in the Contract, neither Party excludes or limits liability to the other Party for:
- a) death or personal injury caused by its negligence;
 - b) Fraud or fraudulent misrepresentation; or
 - c) any breach of any obligations implied by section 12 of the Sale of Goods Act 1979 or Parts I and II of the Supply of Goods and Services Act 1982.
- 9.2 The Supplier shall indemnify and keep indemnified the Authority against all claims, proceedings, demands, actions, damages, costs, breach of statutory duty, expenses and any other liabilities which arise in tort (including negligence) default or breach of the Contract to the extent that any such loss or claim is due to the breach of contract, negligence, wilful default or Fraud of itself or of Staff or Sub-contractors save to the extent that the same is directly caused by the negligence, breach of the Contract or applicable law by the Authority.
- 9.3 The Supplier shall not exclude liability for additional operational, administrative costs and/or expenses or wasted expenditure resulting from the direct Default of the Supplier.
- 9.4 Subject to Clause 9.1:
- a) neither Party is liable to the other for any:
 - (i) loss of profits, business, revenue or goodwill;

- (ii) loss of savings (whether anticipated or otherwise); and/or
 - (iii) indirect or consequential loss or damage
- b) each Party's total aggregate liability in respect of all claims, losses damages, whether arising from tort (including negligence), breach of contract or otherwise under or in connection with the Contract, shall not exceed £1,000,000 (one million pounds) or 2 x the value of the contract, whichever is the lower amount.
- 9.5 The Supplier shall, with effect from the Commencement Date and for such period as necessary to enable the Supplier to comply with its obligations under the Contract, take out and maintain with a reputable insurance company a policy or policies of insurance providing an adequate level of cover in respect of all risks which may be incurred by the Supplier, arising out of the Supplier's performance of its obligations under the Contract, including employer's liability, death or personal injury, loss of or damage to property or any other loss, including financial loss arising from any advice given or omitted to be given by the Supplier. Such insurance shall be maintained for the Contract Term and for a minimum of 6 years following the end of the Contract.
- 9.6 The Supplier shall give the Authority, on request, copies of all insurance policies referred to in this Clause or a broker's verification of insurance to demonstrate that the appropriate cover is in place, together with receipts or other evidence of payment of the latest premiums due under those policies.
- 9.7 If the Supplier fails to comply with Clauses 9.5 and 9.6 the Authority may make alternative arrangements to protect its interests and may recover the costs of such arrangements from the Supplier.
- 9.8 The provisions of any insurance or the amount of cover shall not relieve the Supplier of any liabilities under the Contract.
- 9.9 The Supplier shall not take any action or fail to take any reasonable action, or (to the extent that it is reasonably within its power) permit anything to occur in relation to the Supplier, which would entitle any insurer to refuse to pay any claim under any insurance policy in which the Supplier is an insured, a co-insured or additional insured person.

10. Confidentiality and Data Protection

- 10.1. Subject to Clause 10.2, unless agreed otherwise in writing, the Supplier shall, and shall procure that Staff shall, keep confidential all matters relating to the Contract.
- 10.2. Clause 10.1 shall not apply to any disclosure of information:
- a) required by any applicable law;
 - b) that is reasonably required by persons engaged by the Supplier in performing the Supplier's obligations under the Contract;
 - c) where the Supplier can demonstrate that such information is already generally available and in the public domain other than as a result of a breach of Clause 10.1; or
 - d) which is already lawfully in the Supplier's possession prior to its disclosure by the Authority.

- 10.3. The Parties acknowledge that for the purposes of the Data Protection Legislation, the Authority is the Controller and the Supplier is the Processor unless otherwise specified in Schedule 3. The only processing that the Supplier is authorised to do is listed in Schedule 3 by the Authority and may not be determined by the Supplier.
- 10.4. The Supplier shall notify the Authority immediately if it considers that any of the Authority's instructions infringe the Data Protection Legislation.
- 10.5. The Supplier shall provide all reasonable assistance to the Authority in the preparation of any Data Protection Impact Assessment prior to commencing any processing. Such assistance may, at the discretion of the Authority, include:
- a. a systematic description of the envisaged processing operations and the purpose of the processing;
 - b. an assessment of the necessity and proportionality of the processing operations in relation to the Services;
 - c. an assessment of the risks to the rights and freedoms of Data Subjects; and
 - d. the measures envisaged to address the risks, including safeguards, security measures and mechanisms to ensure the protection of Personal Data.
- 10.6. The Supplier shall, in relation to any Personal Data processed in connection with its obligations under this Contract:
- a. process that Personal Data only in accordance with Schedule 3 unless the Supplier is required to do otherwise by Law. If it is so required the Supplier shall promptly notify the Authority before processing the Personal Data unless prohibited by Law;
 - b. ensure that it has in place Protective Measures which are appropriate to protect against a Data Loss Event, which the Authority may reasonably reject (but failure to reject shall not amount to approval by the Authority of the adequacy of the Protective Measures), having taken account of the:
 - (i) nature of the data to be protected;
 - (ii) harm that might result from a Data Loss Event;
 - (iii) state of technological development; and
 - (iv) cost of implementing any measures;
 - c. ensure that:
 - (i) the Staff do not process Personal Data except in accordance with this Contract (and in particular Schedule 3);
 - (ii) it takes all reasonable steps to ensure the reliability and integrity of any Staff who have access to the Personal Data and ensure that they:
 - A. are aware of and comply with the Supplier's duties under this clause;

- B. are subject to appropriate confidentiality undertakings with the Supplier or any Sub-processor;
 - C. are informed of the confidential nature of the Personal Data and do not publish, disclose or divulge any of the Personal Data to any third party unless directed in writing to do so by the Authority or as otherwise permitted by this Contract; and
 - D. have undergone adequate training in the use, care, protection and handling of Personal Data; and
 - d. not transfer Personal Data outside of the European Union unless the prior written consent of the Authority has been obtained and the following conditions are fulfilled:
 - (i) the Authority or the Supplier has provided appropriate safeguards in relation to the transfer (whether in accordance with the GDPR Article 46 or LED Article 37) as determined by the Authority;
 - (ii) the Data Subject has enforceable rights and effective legal remedies;
 - (iii) the Supplier complies with its obligations under the Data Protection Legislation by providing an adequate level of protection to any Personal Data that is transferred (or, if it is not so bound, uses its best endeavours to assist the Authority in meeting its obligations); and
 - (iv) the Supplier complies with any reasonable instructions notified to it in advance by the Authority with respect to the processing of the Personal Data;
 - e. at the written direction of the Authority, delete or return Personal Data (and any copies of it) to the Authority on termination of the Contract unless the Supplier is required by Law to retain the Personal Data.
- 10.7. Subject to clause 10.8 the Supplier shall notify the Authority immediately if, in relation to any Personal Data processed in connection with its obligations under this Contract, it:
- a. receives a Data Subject Request (or purported Data Subject Request);
 - b. receives a request to rectify, block or erase any Personal Data;
 - c. receives any other request, complaint or communication relating to either Party's obligations under the Data Protection Legislation;
 - d. receives any communication from the Information Commissioner or any other regulatory authority;
 - e. receives a request from any third party for disclosure of Personal Data where compliance with such request is required or purported to be required by Law; or
 - f. becomes aware of a Data Loss Event.
- 10.8. The Supplier's obligation to notify under clause 10.7 shall include the provision of further information to the Authority in phases, as details become available.

- 10.9. Taking into account the nature of the processing, the Supplier shall provide the Authority with full assistance in relation to either Party's obligations under Data Protection Legislation in relation to any Personal Data processed in connection with its obligations under this Contract and any complaint, communication or request made under Clause 10.7 (and insofar as possible within the timescales reasonably required by the Authority) including by promptly providing:
- a. the Authority with full details and copies of the complaint, communication or request;
 - b. such assistance as is reasonably requested by the Authority to enable the Authority to comply with a Data Subject Request within the relevant timescales set out in the Data Protection Legislation;
 - c. the Authority, at its request, with any Personal Data it holds in relation to a Data Subject;
 - d. assistance as requested by the Authority following any Data Loss Event;
 - e. assistance as requested by the Authority with respect to any request from the Information Commissioner's Office, or any consultation by the Authority with the Information Commissioner's Office.
- 10.10. The Supplier shall maintain complete and accurate records and information to demonstrate its compliance with this clause 10. This requirement does not apply where the Supplier employs fewer than 250 staff, unless:
- a. the Authority determines that the processing is not occasional;
 - b. the Authority determines the processing includes special categories of data as referred to in Article 9(1) of the GDPR or Personal Data relating to criminal convictions and offences referred to in Article 10 of the GDPR; or
 - c. the Authority determines that the processing is likely to result in a risk to the rights and freedoms of Data Subjects.
- 10.11. The Supplier shall allow for audits of its Personal Data processing activity by the Authority or the Authority's designated auditor.
- 10.12. Each Party shall designate its own Data Protection Officer if required by the Data Protection Legislation.
- 10.13. Before allowing any Sub-processor to process any Personal Data related to this Contract, the Supplier must:
- a. notify the Authority in writing of the intended Sub-processor and processing;
 - b. obtain the written consent of the Authority; and
 - c. enter into a written agreement with the Sub-processor which give effect to the terms set out in this clause 10 such that they apply to the Sub-processor; and.
 - d. provide the Authority with such information regarding the Sub-processor as the Authority may reasonably require.

- 10.14. The Supplier shall remain fully liable for all acts or omissions of any of its Sub-processors.
- 10.15. The Authority may, at any time on not less than 30 Working Days' notice, revise this clause by replacing it with any applicable controller to processor standard clauses or similar terms forming part of an applicable certification scheme (which shall apply when incorporated by attachment to this Contract).
- 10.16. The Parties agree to take account of any non-mandatory guidance issued by the Information Commissioner's Office. The Authority may on not less than 30 Working Days' notice to the Supplier amend this Contract to ensure that it complies with any guidance issued by the Information Commissioner's Officer.
- 10.17. This clause 10 shall apply during the Contract Term and indefinitely after its expiry.

11. Freedom of Information

- 11.1. The Supplier acknowledges that the Authority is subject to the Freedom of Information Act 2000 and the Environmental Information Regulations 2004 (the "Information Acts") and may be required to disclose certain information to third parties including information relating to this Contract pursuant to the Information Acts.
- 11.2. If the Authority receives a request for information relating to the Contract pursuant to either of the Information Acts, the Authority may disclose such information as necessary in order to comply with its duties under the Information Acts.

12. Intellectual Property Rights

- 12.1. The IP Materials shall vest in the Authority and the Supplier shall not, and shall procure that Staff shall not, use or disclose any IP Materials without Approval save to the extent necessary for the Supplier to provide the Services.
- 12.2. The Supplier shall indemnify and keep indemnified the Authority and the Crown against all actions, claims, demands, losses, damages, costs and expenses and other liabilities which the Authority or the Crown may suffer or incur arising from any infringement or alleged infringement of any Intellectual Property Rights by the availability of the Services except to the extent that they have been caused by or contributed to by the Authority's acts or omissions.

13. Prevention of Corruption and Fraud

- 13.1. The Supplier shall act within the provisions of the Bribery Act 2010.
- 13.2. The Supplier shall take all reasonable steps, in accordance with Good Industry Practice, to prevent Fraud by Staff and the Supplier (including its shareholders, members and directors) in connection with the receipt of money from the Authority.
- 13.3. The Supplier shall notify the Authority immediately if it has reason to suspect that Fraud has occurred, is occurring or is likely to occur.

14. Discrimination

- 14.1 The Supplier shall not unlawfully discriminate within the meaning and scope of any law, enactment, order or regulation relating to discrimination in employment.
- 14.2 The Supplier shall notify the Authority immediately in writing as soon as it becomes aware of any legal proceedings threatened or issued against it by Staff on the grounds of discrimination arising in connection with the Services.

15. Environmental and Ethical Policies

- 15.1 The Supplier shall provide the Services in accordance with the Authority's policies on the environment, sustainable and ethical procurement and timber and wood derived products, details of which are available on the Authority Website.

16. Health and Safety

- 16.1 Each Party will promptly notify the other Party of any health and safety hazards which may arise in connection with the Services.
- 16.2 While on the Authority's premises, the Supplier shall comply with the Authority's health and safety policies.
- 16.3 The Supplier shall notify the Authority immediately if any incident occurs in providing the Services on the Authority's premises which causes or may cause personal injury.
- 16.4 The Supplier shall comply with the requirements of the Health and Safety at Work etc Act 1974, and with any other acts, orders, regulations and codes of practice relating to health and safety, which may apply to Staff and other persons working on the Authority's premises when providing the Services.
- 16.5 The Supplier's health and safety policy statement (as required by the Health and Safety at Work etc. Act 1974) shall be made available to the Authority on request.

17. Monitoring and Audit

- 17.1 The Authority may monitor the provision of the Services and the Supplier shall co-operate, and shall procure that Staff and any Sub-contractors co-operate, with the Authority in carrying out the monitoring at no additional charge to the Authority.
- 17.2 The Supplier shall keep and maintain until 6 years after the end of the Contract Term full and accurate records of the Contract including the Services supplied under it and all payments made by the Authority. The Supplier shall allow the Authority, the National Audit Office and the Comptroller and Auditor General reasonable access to those records and on such terms as they may request.
- 17.3 The Supplier agrees to provide, free of charge, whenever requested, copies of audit reports obtained by the Supplier in relation to the Services.

18. Transfer and Sub-Contracting

- 18.1 The Supplier shall not transfer, charge, assign, sub-contract or in any other way dispose of the Contract or any part of it without Approval.
- 18.2 If the Supplier enters into any Sub-contract in connection with the Contract it shall:

- a) remain responsible to the Authority for the performance of its obligations under the Contract;
- b) be responsible for the acts and/or omissions of its Sub-contractors as though they are its own;
- c) impose obligations on its Sub-contractors in the same terms as those imposed on it pursuant to the Contract and shall procure that the Sub-Supplier complies with such terms;
- d) pay its Sub-contractors' undisputed invoices within 30 days of receipt.

18.3 The Authority may assign, novate or otherwise dispose of its rights and obligations under the Contract or any part thereof to:

- a) any Contracting Authority or any other body established by the Crown or under statute in order substantially to perform any of the functions that had previously been performed by the Authority; or
- b) any private sector body which performs substantially any of the functions of the Authority.

18.4 Any change in the legal status of the Authority such that it ceases to be a Contracting Authority shall not affect the validity of the Contract. In such circumstances the Contract shall bind and inure to the benefit of any successor body to the Authority.

19. Variation

19.1 Subject to the provisions of this Clause 19, the Authority may change the Specification provided that such change is not a material change to the Specification (a "Variation").

19.2 The Authority may request a Variation by notifying the Supplier with sufficient information to assess the extent of the Variation and consider whether any change to the Price is required in order to implement it. Variations agreed by the Parties shall be made in writing.

19.3 If the Supplier is unable to accept the Variation or where the Parties are unable to agree a change to the Price, the Authority may:

- a) allow the Supplier to fulfil its obligations under the Contract without the Variation; or
- b) refer the request to be dealt with under the Dispute Resolution Procedure.

20. Dispute Resolution

20.1 The Parties shall attempt in good faith to resolve any dispute between them arising out of the Contract within 10 Working Days of either Party notifying the other of the dispute and such efforts shall include the escalation of the dispute to the Supplier's representative and the Authority's commercial director or equivalent.

20.2 Nothing in this dispute resolution procedure shall prevent the Parties from seeking from any court of competent jurisdiction an interim order restraining the other Party from doing any act or compelling the other Party to do any act.

- 20.3 If the dispute cannot be resolved by the Parties pursuant to Clause 20.1 the Parties shall refer it to mediation pursuant to the procedure set out in Clauses 20.5 to 20.10.
- 20.4 The obligations of the Parties under the Contract shall not cease, or be suspended or delayed by the reference of a dispute to mediation and the Supplier and Staff shall comply fully with the requirements of the Contract at all times.
- 20.5 A neutral adviser or mediator (the “Mediator”) shall be chosen by agreement between the Parties or, if they are unable to agree a Mediator within 10 Working Days after a request by one Party or if the chosen Mediator is unable to act, either Party shall within 10 Working Days from the date of the proposal to appoint a Mediator or within 10 Working Days of notice to either Party that he is unable or unwilling to act, apply to the Centre for Effective Dispute Resolution to appoint a Mediator.
- 20.6 The Parties shall, within 10 Working Days of the appointment of the Mediator, meet the Mediator to agree a programme for the disclosure of information and the structure to be adopted for negotiations. The Parties may at any stage seek assistance from the Centre for Effective Dispute Resolution to provide guidance on a suitable procedure.
- 20.7 Unless otherwise agreed, all negotiations connected with the dispute and any settlement agreement relating to it shall be conducted in confidence and without prejudice to the rights of the Parties in any future proceedings.
- 20.8 If the Parties reach agreement on the resolution of the dispute, the agreement shall be recorded in writing and shall be binding on the Parties once it is signed by their duly authorised representatives.
- 20.9 Failing agreement, either of the Parties may invite the Mediator to provide a non-binding but informative written opinion. Such opinion shall be provided on a without prejudice basis and shall not be used in evidence in any proceedings relating to the Contract without the prior written consent of both Parties.
- 20.10 If the Parties fail to reach agreement within 60 Working Days of the Mediator being appointed, or such longer period as may be agreed by the Parties, then the dispute may be referred to the Courts.
- 20.11 Subject to Clause 20.2, the Parties shall not institute court proceedings until the procedures set out in Clauses 20.1 and 20.5 to 20.10 have been completed.

21. Supplier’s Status

- 21.1 Nothing in the Contract shall be construed as constituting a partnership between the Parties or as constituting either Party as the agent for the other for any purposes except as specified by the terms of the Contract.
- 21.2 The Supplier shall not (and shall ensure that Staff shall not) say or do anything that might lead any person to believe that the Supplier is acting as the agent, partner or employee of the Authority.

22. Notices

- 22.1 Notices shall be in writing and in English and shall be deemed given if signed by or on behalf of a duly authorised officer of the Party giving the notice and if left at, or sent by first class mail to the address of the receiving Party as specified in the Contract (or as amended from time to time by notice in writing to the other Party).

23. Entire Agreement

- 23.1 The Contract constitutes the entire agreement between the Parties relating to the subject matter of the Contract. The Contract supersedes all prior negotiations, representations, arrangements and undertakings.

24. Third Party Rights

- 24.1 No term of the Contract is intended to confer a benefit on, or be enforceable by, any person who is not a Party other than the Crown.

25. Waiver

- 25.1 The failure of either Party to insist upon strict performance of any provision of the Contract, or the failure of either Party to exercise, or any delay in exercising, any right or remedy shall not constitute a waiver of that right or remedy and shall not cause a diminution of the obligations established by the Contract.
- 25.2 No waiver shall be effective unless it is expressly stated to be a waiver and communicated to the other Party in writing.
- 25.3 A waiver of any right or remedy arising from a breach of the Contract shall not constitute a waiver of any right or remedy arising from any other or subsequent breach of the Contract.

26. Publicity

- 26.1 The Supplier shall not without Approval:
- a) make any press announcements or publicise the Contract or its contents in any way; or
 - b) use the Authority's name or logo in any promotion or marketing or announcement.
- 26.2 The Authority may publish the Contract on the Authority Website or another website at its discretion.

27. Force Majeure

- 27.1 Except to the extent that the Supplier has not complied with any business continuity plan agreed with the Authority, neither Party shall be liable for any failure to perform its obligations under the Contract if, and to the extent, that the failure is caused by act of God, war, riots, acts of terrorism, fire, flood, storm or earthquake and any disaster but excluding any industrial dispute relating to the Supplier, Staff or Sub-contractors.
- 27.2 If there is an event of Force Majeure, the affected Party shall use all reasonable endeavours to mitigate the effect of the event of Force Majeure on the performance of its obligations.

28. Governing Law and Jurisdiction

- 28.1 The Contract shall be governed by and interpreted in accordance with English law and shall be subject to the jurisdiction of the Courts of England and Wales.
- 28.2 The submission to such jurisdiction shall not limit the right of the Authority to take proceedings against the Supplier in any other court of competent jurisdiction and the taking of proceedings in any other court of competent jurisdiction shall not preclude the taking of proceedings in any other jurisdiction whether concurrently or not.

29. Electronic Signature

- 29.1 Acceptance of the award of this contract will be made by electronic signature carried out in accordance with the 1999 EU Directive 99/93 (Community framework for electronic signatures) and the UK Electronic Communications Act 2000.
- 29.2 The Contract is formed on the date on which the Supplier communicates acceptance on the Authority's electronic contract management system.
- 29.3 No other form of acknowledgement will be accepted.

30. Precedence

In the event of and only to the extent of any conflict between the terms and conditions or the special terms below, the conflict shall be resolved in accordance with the following order of precedence:

- a) the special terms below;
- b) the main terms of the Contract (pages 1 to 15);
- c) any other document referred to in the Agreement

Unless expressly agreed, a document varied pursuant to clause 19 shall not take higher precedence than specified here.

SCHEDULE 1 - SPECIFICATION OF SERVICES

The Authority is the UK Government Department responsible for the environment, food and farming and rural affairs. The Authority's priorities are to secure a healthy natural environment; a sustainable, low-carbon economy; a thriving farming sector and a sustainable, healthy and secure food supply. Further information on the Authority can be found at: [Natural England](#)

a) Background to Natural England

Natural England is the government's advisor on the natural environment. We provide practical advice, grounded in science, on how best to safeguard England's natural wealth for the benefit of everyone. Our remit is to ensure sustainable stewardship of the land and sea so that people and nature can thrive. It is our responsibility to see that England's rich natural environment can adapt and survive intact for future generations to enjoy.

b) Background to the specific Natural England work area relevant to this purchase

In fresh and coastal waters quality issues due to nutrient enrichment are one of the primary reasons for unfavourable condition for European and SSSI sites and failure to meet good ecological status under the Water Framework Directive. To achieve the necessary improvements in water quality, it is becoming increasingly evident that in many cases substantial reductions in nutrients are needed. Growing evidence is suggesting that a range of interventions may be required in addition to traditional diffuse pollution reduction land management measures and conventional treatment upgrades to point sources. In addition, for sites that are unfavourable due to nutrients, mitigation solutions are needed to enable new development to be nutrient-neutral.

The creation of wetlands has been shown to have the potential to significantly reduce nutrient pollution thereby providing a potential mitigation solution that could help deliver nutrient neutrality and/or contribute towards achieving designated site water quality objectives.

Natural England also has a role in working with the Environmental Agency and others to develop diffuse water pollution plans and/or nutrient management plans, which look to identify the measures needed to restore nutrient levels at designated sites to achieve favourable condition.

Natural England also has a statutory role to provide advice to competent authorities such as local planning authorities and the Environment Agency on any Habitat Regulations Assessments, which can include wetland mitigation proposals. This includes advising on whether the wetland mitigation proposals will deliver with sufficient certainty the nutrient reductions which have been proposed. Appendix 4 of the

[**Solent Nutrient neutrality methodology**](#) sets out some information on the potential use of constructed wetlands for nitrogen mitigation and Appendix 7 of the methodology for

[**Stodmarsh**](#) looks at nitrogen and phosphorus (see annex 1 and 2 below).

The design of wetland mitigation and understanding its likely efficacy is extremely complex and requires substantial technical knowledge and expertise. Natural England staff rarely have this level of expertise but will still need to be able to provide some steer to LPAs and others who are advocating wetland mitigation proposals. Therefore, a framework and/or tools are needed which can help enable Natural England staff provide advice on these proposals.

c) Requirement

The objective of this project is to develop a framework approach, based on existing evidence, including a checklist and/or tools which can help enable Natural England staff to adequately and appropriately comment on wetland proposals and designs put forward. This should focus on integrated constructed, free surface wetland mitigation proposals taking into account the level of certainty that nutrient reductions will be achieved alongside a range of other considerations, including compatibility with wider habitat restoration opportunities.

It is not expected that any approach developed would require NE staff to undertake detailed modelling or allow them to quickly become experts in the design of wetlands. Rather that the approach will be a high-level screening exercise which would enable NE staff to identify those proposals which are unreliable, likely to fail, not sufficiently precautionary and unlikely to meet the requirements of the

Habitat Regulations, or more widely, are inappropriate in the proposed location because they will compromise wider habitat restoration possibilities.

The approach needs to:

- be something that can be used by individuals which do not have extensive technical expertise on wetlands and is relatively quick and easy to apply.
- avoid compromising the conservation, restoration and re-establishment of naturally derived and functioning freshwater and wetland types of conservation importance
- be precautionary, and therefore provide sufficient certainty needed within a Habitat Regulations Assessment, that the reductions will be achieved and maintained over longer periods of time (i.e decades).
- take account of any time lags in the wetland reaching the 'normal' range of efficacy.
- Cover the full range of wetlands situations e.g. nature of the water source that may feed the wetland.
- Be based on the best available evidence.

In developing an approach, the following should be considered:

- The reliance that should be placed and understanding the level of expertise including relevant accreditation/approval of bodies like the Constructed Wetland Association (CWA), of any contractors providing bespoke wetland design and efficacy figures.
- Whether it is possible to develop a simple framework and/or checklist of the key information that NE would want to see included in any wetland mitigation proposals (e.g. size, location, hydraulic loading, inlet concentration, previous land use) and how this information can be used by NE, including if there are any criteria that can be applied, which would enable the identification of whether the proposals are reliable, they are unlikely to fail, sufficiently precautionary, meets the requirements of the habitat regulations and is in an appropriate location.
- Whether it is possible to develop any easy and quick tools/calculations or a series of generic values/ranges for some or all different free surface wetland situations which will enable Natural England staff or others to determine if the proposed efficacies are reliable and precautionary. This could include identifying factors which, in relation to the nutrient source type, are most conducive to nutrient removal or those that could cause significant underperformance in nutrient removal efficacy or significant reduction in performance over time. This may be particularly useful for wetlands which are of a more standardized design or are small scale where the cost of getting bespoke wetland advice on design and efficacy may be prohibitive.
- Whether different efficacy values should be used at different stages/timeframes in the development of the wetland
- Whether it is possible to develop a simple framework/checklist to help NE staff assess if any proposed monitoring and maintenance are appropriate to ensure the reductions are achieved and maintained over the longer-term.

It may be that different approaches (including the types and level of checks that are needed), are required for different wetland situations or locations, including whether the wetland is within the catchment of a designated site compared to if it will be directly discharging into a designated site and therefore for the later whether there are extra localized effects that need to be considered.

The rationale, key evidence and principles that underpin any developed framework including any criteria and/or tools should be clearly set out in the report to an extent which would enable NE to defend the position it has come to using the framework on the appropriateness of any wetland mitigation proposals.

Tenders should set out details of what approach and/or tools it will be possible to develop through this project based on existing best available evidence. Other potential alternative or more innovative

approaches will be considered but they should be clearly explained as to how they would deliver the objectives of the project.

d) Scope of the specification

This is a one-off project, but there may be a need to further develop the approach and/or tools in the future.

At the end of the project a one hour webinar should be delivered (and recorded) for Natural England staff to explain the approach and/or tools developed.

e) Outputs and Contract Management

The main outputs for this project will be:

- A project inception meeting by video call (e.g. MS Teams/Zoom) within the first week of the project start. All costs associated with attending the inception meeting must be incorporated into the fixed price. The successful Tenderer must identify individuals who will manage the project and nominate a representative for day-to-day contact with the authority's project officer.
- Monthly calls with the project steering group to provide updates on progress in line with agreed deliverables and milestones, emerging findings, get knowledge input and feedback on deliverables.
- Contact by email with project officer every two weeks providing updates on progress and any issues. Any issues in delivering the project should be raised as soon as possible.
- Draft report which includes the proposed framework/approach as well as an explanation of the key evidence and principles on which it is based and other tools developed with at least 3 weeks to provide comments.
- Quality-assured final report and any tools developed to be provided to project manager in Word and/or Excel format. If any other format is to be used, this has to be agreed with the project manager at the start of the project and would need to be something which is accessible to all NE staff.
- Powerpoint slides and recorded webinar for NE/EA staff providing an explanation of the approach/tools developed.

Key timescales:

Chronological Summary of Key Project Outputs & Payment Schedule		
Key Milestone	Criteria / KPI	Weighted payment as % of contract value and payment dates
26 Nov 21	Project Start	
26 Nov – 3 Dec 21	Inception meeting between project officer, steering group and supplier	
11 Feb 22	Draft report to project officer in digital format via email	11/02/21 Invoice 1 – 25%
18 Mar 22	Final reports due to project officer in digital format via e-mail and draft PowerPoint slides	18/03/22 Invoice 3 – 25%
Week commencing 21 Mar 22	Webinar for Natural England staff	

SCHEDULE 3 - PROCESSING, PERSONAL DATA AND DATA SUBJECTS

1. This Schedule shall be completed by the Authority, who may take account of the view of the Supplier, however the final decision as to the content of this Schedule shall be with the Authority at its absolute discretion.

2. The contact details of the Authority Data Protection Officer are:

foi@naturalengland.org.uk for Natural England

3. The contact details of the Supplier Data Protection Officer are:

[REDACTED]

4. The Supplier shall comply with any further written instructions with respect to processing by the Authority.

1. Any such further instructions shall be incorporated into this Schedule.

Data Processing Descriptor	Narrative
Identity of the Controller and Processor	The Parties acknowledge that for the purposes of the Data Protection Legislation, the Authority is the Controller and the Supplier is the Processor in accordance with Clause 10.3. [Guidance: You may need to vary this section where (in the rare case) the Authority and Supplier have a different relationship. For example where the Parties are Joint Controller of some Personal Data include: <i>“Notwithstanding Clause 10.3 the Parties acknowledge that they are also Joint Controllers for the purposes of the Data Protection Legislation in respect of:</i> <i>[Insert the scope of Personal Data which the purposes and means of the processing is determined by both Parties]</i> <i>In respect of Personal Data in respect of which the Parties are Joint Controllers, Clause 10.3 to 10.16 will not apply and the Parties agree to put in place a Joint Controller Agreement as outlined in Schedule [X] instead.”]</i>
Subject matter of the processing	<i>[This should be a high level, short description of what the processing is about i.e. its subject matter.</i> <i>Example: The processing is needed in order to ensure that the Processor can effectively deliver the contract to provide a service to members of the public.]</i>
Duration of the processing	<i>[Clearly set out the duration of the processing including dates]</i>
Nature and purposes of the processing	<i>[Please be as specific as possible, but make sure that you cover all intended purposes.</i> <i>The nature of the processing means any operation such as collection, recording, organisation, structuring, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, restriction, erasure or destruction of data (whether or not by automated means) etc.</i> <i>The purpose might include: employment processing, statutory obligation, recruitment assessment etc.]</i>
Type of Personal Data	<i>[Examples here include: name, address, date of birth, NI number, telephone number, pay, images, biometric data etc.]</i>

Categories of Data Subject	<i>[Examples include: Staff (including volunteers, agents, and temporary workers), customers/ clients, suppliers, patients, students / pupils, members of the public, users of a particular website etc.]</i>
Plan for return and destruction of the data once the processing is complete UNLESS requirement under union or member state law to preserve that type of data	<i>[Describe how long the data will be retained for, how it be returned or destroyed]</i>

APPENDIX E

Potential for N mitigation using wetlands

Where N budget calculations indicate that N outputs from proposed developments are greater than pre development conditions, the use of new constructed wetlands to retain some of the N output is one mitigation option.

There are a number of possibilities for different types of constructed wetland. Wetlands can be designed as part of a sustainable urban drainage (SUDs) system, taking urban runoff/stormwater; discharges from STWs can be routed through wetlands; or the flow, or part of the flow, of existing streams or rivers can be diverted through wetlands.

Wetlands receiving nitrogen-rich water can remove a proportion of this nitrogen through processes such as denitrification and sedimentation. This has been demonstrated in numerous studies; a recent systematic review of the effectiveness of wetlands for N (and P) removal (Land et al 2016) used data from 203 wetlands worldwide of which the majority were free water surface (FWS) wetlands (similar in appearance and function to natural marshes with areas of open water, floating vegetation and emergent plants). The median removal rate for wetlands that were included in this review was 93g/m² /yr (or just under a tonne/ha/year). The proportion of N removed is termed the efficiency and the median efficiency of wetlands included in the Land review was 37%.

Many factors influence the rate of N removal in a wetland the most important being hydraulic loading (HLR - a function of the inlet flow rate and the wetland size), inlet N concentration and temperature. Together inlet N concentration and flow rate determine the amount of N that flows through the wetland which ultimately limits the amount of N saving that can be achieved.

The rate of removal can also be expressed in terms of the amount of N removed per unit wetland area. This removal rate will typically increase as the inlet N concentration increases, at least within the normal range of inlet N concentrations. Thus wetlands that treat the N rich discharges, for example from STWs, or water in rivers where the N concentrations are high, will remove more N per unit area than say, wetlands treating water in a stream where water quality is very good and the N concentration is low. Thus if space is at a premium, and the goal is to remove as much N as possible, it makes sense to site wetlands where N concentrations are high.

For wetlands to work well, specialist design input based on sound environmental information will be necessary. There will be a need for consultation with relevant statutory bodies. These processes are likely to be easier where wetlands are an integral part of a larger development. Wetlands do offer additional benefits above offering neutrality but will also require ongoing monitoring, maintenance and adjustments beyond any particular developments completion. Consideration of the long term security of facilities and their adoption at an early stage is advisable.

There are a number of publications which advise about constructed wetlands. For example, Kadlec and Wallace (2009) is a comprehensive source of information covering all stages related to the implementation of different types of constructed wetland. The many papers relating the results from detailed monitoring over many years of the performance of two constructed wetlands in Ohio, USA are also instructive (eg Mitsch et al 2005, 2006, 2014).

Stormwater wetlands

These are what is termed event-driven precipitation wetlands with intermittent flows. There will normally be baseflow and stormwater components to the inputs.

For such wetlands Kadlec and Wallace state that:-

‘A typical configuration consists of a sedimentation basin as a forebay followed by some combination of marshes and deeper pools’

However, ponds are usually less effective at removing N (Newman et al 2015) than shallow FWS wetlands so the emphasis here should be on the latter although a small initial sedimentation basin is desirable since it is likely to reduce the maintenance requirement for sediment removal in the FWS wetland. One advantage of this type of wetland is that it can be designed as an integral part of SUDs for the development and therefore is subject to fewer constraints.

Some wetlands with intermittent flows are prone to drying out and may need provisions for a supplemental water source. In some circumstances, this may be possible through positioning the wetland bottom so that there is some connection to groundwater. However many varieties of wetland vegetation can withstand drying out although there may be a small reduction in water quality improvement (Kadlec and Wallace 2009). Nevertheless base and stormwater flows to each wetland should be worked out to ensure that it is viable.

Wetlands need to be appropriately sized taking into account the HLR and N loading rates. To give a general idea of the areas involved, a wetland 1ha in area would serve a development area of about 50ha.

Calculating the potential N retention in such wetlands involves first determining the proportion of the HER that will pass through the wetland because a percentage of the water carrying N will go directly into groundwater, bypassing storm drains and SUDs and the constructed wetlands. This percentage will depend on such factors as the proportion of hard surface within the development and the geology. Then, assuming the inlet TN concentration is 3mg/l, a proportionate reduction of 37% can be used to work out the amount of N retained.

Provision is needed to control tree and scrub invasion, for wetlands with emergent vegetation medium height such as Typha and reed had higher rates of denitrification than those dominated by trees and woody shrubs (Alldred and Baines 2016).

Other critical aspects of design are the water control structures - inflow and outflow arrangements with water level control – and the need or otherwise for a liner. This last issue is related to soil permeability. A variety of emergent wetland plants, not only reed, can be effective within wetlands. Wetlands with a number of different plant species, rather than monocultures, are desirable both for biodiversity reasons and because they are more resilient against changes in environmental conditions; different species will have different tolerances. Guidance concerning planting can be found in Kadlec and Wallace (2009); allowance should be made in planting ratios and densities for different rates of expansion of different species. Another approach is to use material containing wetland plant seeds from a nearby wetland with a species composition similar to the one preferred. However, unless the donor site is carefully monitored, this would obviously increase the risk of importing unwanted alien plants.

Sedimentation will eventually compromise some aspects of the wetland's function and rejuvenation measures will be necessary (Kadlec and Wallace 2009). The same authors indicate a sediment accretion rate in the order of 1 or 2cm/yr and give examples of rejuvenation after 15 and 18 years but other wetlands have not needed any significant restoration in similar timespans. Various different options for the management of sediment accumulation are given by Qualls and Heyvaert (2017). There of course needs to be provisions to ensure that appropriate maintenance and restoration measures, guided by monitoring, are periodically carried out.

Other sources of information about stormwater wetlands include Wong et al (1999, available on line). The papers about a stormwater wetland in the Lake Tahoe Basin in California are also useful (Heyvaert et al 2006, Qualls and Heyvaert 2017).

Constructed wetlands taking discharges from STW

Many of the considerations discussed above for stormwater wetlands apply equally here. There will obviously be constraints on the location and size of such a wetland because of land availability in the area of the STW. The flow from the STW together with the N concentration in the discharge are needed to determine the approximate size of a wetland. We would recommend a wetland area that gives an N loading of about 500 g/m² /yr or lower. Because many of the discharges from STW have a high N concentration the potential for N retention in such wetlands is also high. The concentration of N in the outflow will be variable but the purpose of such wetlands is to retain N overall rather than to provide a specific constant standard of water quality in the outflow.

Wetlands associated with streams and rivers

Diverting part of the flow of a stream or river through a wetland, with the outflow returning to the watercourse, provides another opportunity for N saving. For obvious reasons such wetlands would mostly need to be located on the river floodplain. The inlet flow rate can be controlled so it is appropriate for the size of the wetland created and so that the ecology of the watercourse is not compromised in the section affected.

There can be other concerns in relation to the potential effects on the stream or river. An abstraction licence will almost certainly be required.

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Appendix F

Potential for Nutrient (N&P) mitigation using wetlands

Where N and or P budget calculations indicate that N and/ or P outputs from proposed developments are greater than pre development conditions, the use of new constructed wetlands to retain some of the N and P output is one mitigation option.

There are a number of possibilities for different types of constructed wetland. Wetlands can be designed as part of a sustainable urban drainage (SUDs) system, taking urban runoff stormwater; discharges from Wastewater Treatment Works (WwTWs) can be routed through wetlands; or the flow, or part of the flow, of existing streams or rivers can be diverted through wetlands provided this does not adversely alter the ecological status of the river and does not increase flood risk. Environment Agency advice should always be sought in design of any wetland creation scheme.

Wetlands receiving nutrient-rich water can remove a proportion of this nutrient through processes sedimentation, sorbing nutrients to the sediment, plant growth and process such as denitrification some of which were reviewed in Fisher and Acreman (2004) and numerous studies. A recent systematic review of the effectiveness of wetlands for N and P removal (Land et al 2016) used data from 203 wetlands worldwide of which the majority were free water surface (FWS) wetlands (similar in appearance and function to natural marshes with areas of open water, floating vegetation and emergent plants). The median removal rate for wetlands that were included in this review was 93g/m² /yr TN and 1.2 g/m² /yr TP (or just under a tonne/ha/year TN and 12 kg/ha/yr TP). The proportion of N removed is termed the efficiency and the median efficiency of wetlands TN removal included in the Land review was 37%. Median removal efficiency for TP in the same review was 46 % with a 95 % confidence interval of 37–55 %.

Many factors influence the rate of nutrient removal in a wetland the most important for being hydraulic loading (HLR - a function of the inlet flow rate and the wetland size), inlet N or P concentration and temperature and for TP the Area of the wetland. Together inlet N or P concentration and flow rate partially determine the amount of N or P that flows through the wetland which ultimately limits the amount of N or P saving that can be achieved.

The rate of removal can also be expressed in terms of the amount of N or P removed per unit wetland area. This removal rate will typically increase as the inlet N or P concentration increases, at least within the normal range of inlet N or P concentrations. Thus wetlands that treat the N or P rich discharges, for example from WwTWs, or water in rivers where the N or P concentrations are high, will remove more N or P per unit area than say, wetlands treating water in a stream where water quality is very good and the N or P concentration is low. Thus if space is at a premium, and the goal is to remove as much N or P as possible, it makes sense to site wetlands where N or P concentrations are high in other words as close to WwTW as possible.

For wetlands to work well, specialist design input based on sound environmental information will be necessary. There will be a need for consultation with relevant statutory bodies. These processes are likely to be easier where wetlands are an integral part of a larger development. Wetlands do offer additional benefits above offsetting but will also require ongoing monitoring, maintenance and adjustments beyond any particular developments JULY 2020 – Final version Natural England 55 completion. Consideration of the long term security of facilities and their adoption at an early stage is advisable.

There are a number of publications which advise about constructed wetlands. For example, Kadlec and Wallace (2009) is a comprehensive source of information covering all stages related to the implementation of different types of constructed wetland. The many papers relating the results from detailed monitoring over many years of the performance of two constructed wetlands in Ohio, USA are also instructive (eg Mitsch et al 2005, 2006, 2014). Stormwater/ flood wetlands A7.8 These are what is termed event-driven precipitation wetlands with intermittent flows. There will normally be baseflow and stormwater / flood water components to the inputs.

For such wetlands Kadlec and Wallace state that:-

'A typical configuration consists of a sedimentation basin as a forebay followed by some combination of marshes and deeper pools'

However, ponds are usually less effective at removing N and P (Newman et al 2015) than shallow free water surface constructed wetlands (FWS wetlands) so the emphasis here should be on the latter although a small initial sedimentation basin is desirable since this is likely to reduce the maintenance requirement for sediment removal in the FWS wetland. One advantage of this type of wetland is that it can be designed as an integral part of SUDs for the development and therefore is subject to fewer constraints.

Some wetlands with intermittent flows are prone to drying out and may need provisions for a supplemental water source. In some circumstances, this may be possible through positioning the wetland bottom so that there is some connection to groundwater. However many varieties of wetland vegetation can withstand drying out although there may be a small reduction in water quality improvement (Kadlec and Wallace 2009). Nevertheless base and stormwater flows to each wetland should be worked out to ensure that it is viable and will not add to the water resource issues of the relevant catchment. Initial flush of Phosphorous from soils on former intensively agricultural land was noted in the Land study and this may reduce the short and potentially even long term efficacy of such restored wetlands. Release of phosphorus associated with iron complexes under anaerobic conditions can also contribute to low or negative removal rates, as suggested by Healy and Cawley 2002 as an explanation for the observed low TP removal rates.

Wetlands need to be appropriately sized taking into account the HLR and N or P loading rates. To give a general idea of the areas involved, a wetland 1ha in area would serve a development area of about 50 ha for Nitrogen but given the increased importance of area a larger area would be required for TP reduction from the same development. The Land et al review noted the inconsistency of TP reduction was particularly acute at wetlands below 2 hectares in size with wetlands below this size more likely to be net exporters of TP especially if they were created on former intensively farmed agricultural land. Calculating the potential N or P retention in such wetlands involves first determining the proportion of the hydraulic load that will pass through the wetland because a percentage of the water carrying N and P will go directly into groundwater, bypassing storm drains and SUDs and the constructed wetlands. This percentage will depend on such factors as the proportion of hard surface within the development and the geology. Then, assuming the inlet TN concentration is 3mg/l, a proportionate reduction of 37% can be used to work out the amount of N retained and using 37% is also reasonable for P due to the larger variation of P retention shown in the Land study and this is the bottom end (and therefore precautionary) of the 95% confidence interval for TP retention.

Provision is needed to control tree and scrub invasion, for wetlands with emergent vegetation medium height such as Typha and reed had higher rates of denitrification than those dominated by trees and woody shrubs (Alldred and Baines 2016). Phosphorus uptake and amount partitioned to roots and shoots differs between different wetlands species but as a general rule tall rapidly growing emergent species are the most likely to retain P in vegetation with Juncus effusus having the highest percentage of retained P in the leaf litter of 5 tall emergent species in a comparative study (Kao et al 2003). Other critical aspects of design are the water control structures - inflow and outflow arrangements with water level control – and the need or otherwise for a liner. This last issue is related to soil permeability. A variety of emergent wetland plants, not only reed, can be effective within wetlands. Wetlands with a number of different plant species, rather than monocultures, are desirable both for biodiversity reasons and because they are more resilient against changes in environmental conditions; different species will have different tolerances. Guidance concerning planting can be found in Kadlec and Wallace (2009); allowance should be made in planting ratios and densities for different rates of expansion of different species. Another approach is to use material containing wetland plant seeds from a nearby wetland with a species composition similar to the one preferred. However, unless the donor site is carefully monitored, this would obviously increase the risk of importing unwanted alien plants.

Sedimentation will eventually compromise some aspects of the wetland's function and rejuvenation measures will be necessary (Kadlec and Wallace 2009). The same authors indicate a sediment accretion rate in the order of 1 or 2cm/yr and give examples of rejuvenation after 15 and 18 years but other wetlands have not needed any significant restoration in similar timespans. Various different options for the management of sediment accumulation are given by Qualls and Heyvaert (2017). There of course needs to be provisions to ensure that appropriate maintenance and restoration measures, guided by monitoring, are periodically carried out.

Other sources of information about stormwater wetlands include Wong et al (1999, available on line). The papers about a stormwater wetland in the Lake Tahoe Basin in California are also useful (Heyvaert et al 2006, Qualls and Heyvaert 2017). Constructed wetlands taking discharges from WwTW
Many of the considerations discussed above for stormwater wetlands apply equally here. There will obviously be constraints on the location and size of such a wetland because of land availability in the area of the WwTW. The flow from the WwTW together with the N and P concentration in the discharge are needed to determine the approximate size of a wetland. We would recommend a wetland area that gives an N loading of about 500 g/m² /yr or lower. Since many of the discharges from WwTW have a high N and very high P concentration the potential for N and P retention in such wetlands is also high. The concentration of N and P in the outflow will be variable but the purpose of such wetlands is to retain N and P overall rather than to provide a specific constant standard of water quality in the outflow.

Wetlands associated with streams and rivers

Diverting part of the flow of a stream or river through a wetland, with the outflow returning to the watercourse, provides another opportunity for N and P saving. For obvious reasons such wetlands would mostly need to be located on the river floodplain. The inlet flow rate can be controlled so it is appropriate for the size of the wetland created and so that the ecology of the watercourse is not compromised in the section affected.

There can be other concerns in relation to the potential effects on the stream or river. An abstraction licence will almost certainly be required and this may have implications for the ecological status – any such proposals should always be discussed in detail with the Environment Agency.

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